

Unusual Weight Gain After Antiretroviral Regimen Switch: A Case Report

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INTRODUCTION

- Evolving evidence suggests integrase strand transfer inhibitor (INSTI)-based antiretroviral therapy (ART) is associated with weight gain.¹
- Switching from fixed-dose EFV/TDF/FTC to an INSTI-based regimen may result in more significant increases in weight.²
- INSTI-associated weight gain in the setting of pre-existing HIV-associated lipodystrophy has not been demonstrated.

CASE PRESENTATION

- A 46 year old female presented to transfer HIV care.
- Her antiretroviral regimen was LPR/RTV/3TC/EFV.
- CD4 count – 460 cells/mcL. Viral load – 86 copies/mL.
- Past medical history significant for Hepatitis C, genital herpes, chronic diarrhea, and insomnia.
- **Chief Complaint:**
“I want something to gain weight”.

PHYSICAL EXAM

Vital signs: **BP: 119/81, Weight: 69 kg (153 lbs)**

HEENT: Unremarkable. No thyroid enlargement

LUNGS: Clear to auscultation

HEART: Regular rate and rhythm

ABD: Obese without hepatosplenomegaly

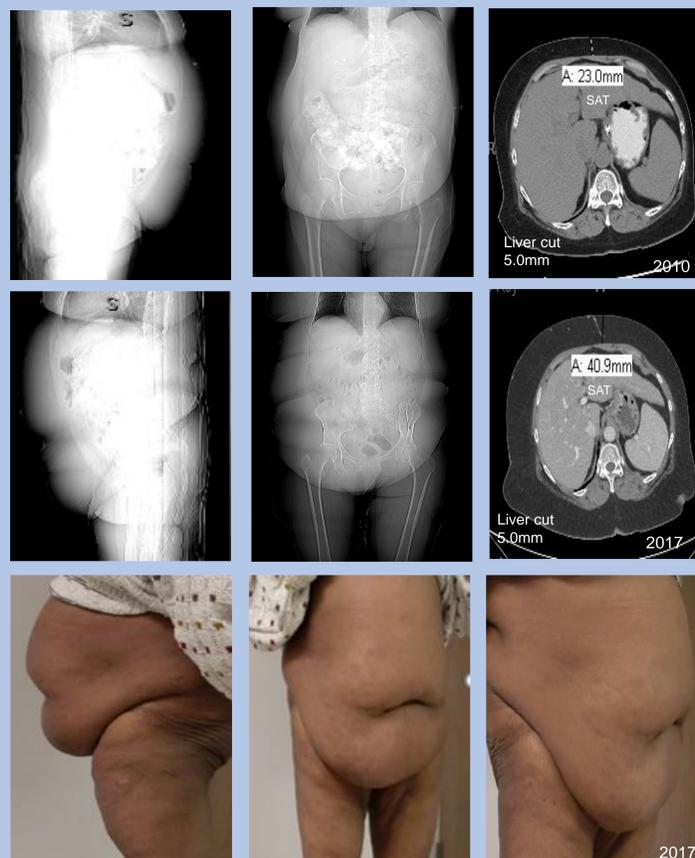
M/S: Muscle loss of face and legs

CLINICAL COURSE

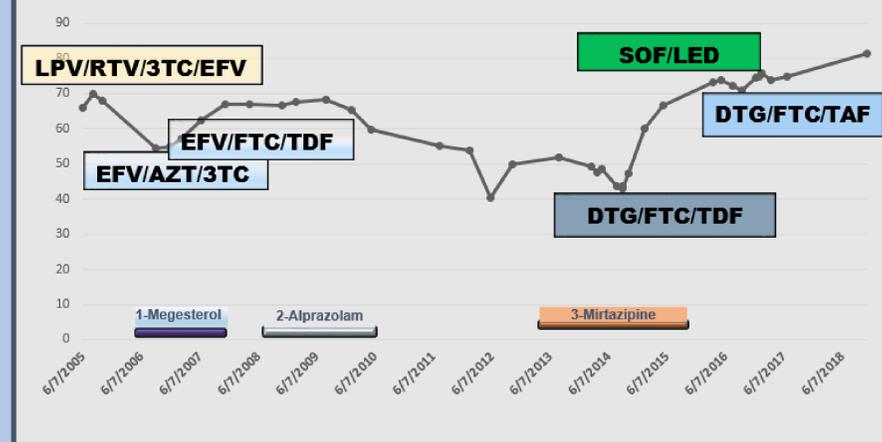
- Patient complained of poor weight gain at each visit.
- Tried various appetite stimulants but failed to achieve desired effect.
- Viral suppression was achieved and maintained.
- Hospitalized for altered mental status at which time antiretroviral regimen was changed from EFV/FTC/TDF to FTC/TDF and DTG.

IMAGING

Lateral-Scout AP-Scout CT-Liver Cut



Weight in Kilograms



Abbreviations
HIV- Human immunodeficiency virus
ART- antiretroviral therapy
LPV/RTV/3TC/EFV – lopinavir/ritonavir/lamivudine/efavirenz
EFV/AZT/3TC – efavirenz/zidovudine/lamivudine
EFV/FTC/TDF – efavirenz/emtricitabine/tenofovir disoproxil fumarate

DTG- dolutegravir
FTC/TDF- emtricitabine/tenofovir disoproxil fumarate
DTG/FTC/TDF – dolutegravir/emtricitabine/tenofovir disoproxil fumarate
SOF/LED – sofosbuvir/ledipasvir
DTG/FTC/TAF – dolutegravir/emtricitabine/tenofovir alafenamide
SAT- subcutaneous abdominal tissue

RESULTS

- Patient gained an excess of **31.4 kg (69.08 lbs.)** after switch from EFV/FTC/TDF to an INSTI-based regimen.
- Her gain in weight resulted in a disproportionate increase in subcutaneous abdominal fat (SAT).
- Peripheral fat loss was essentially unchanged.
- Facial lipoatrophy improved. Patient very pleased.
- Plastic Surgery consulted for removal of redundant abdominal fat.

DISCUSSION

These outcomes are consistent with the recent reports of weight gain associated with integrase strand transfer inhibitor-based regimens. In addition, the switch from fixed dose EFV/TDF/FTC to an INSTI regimen may have contributed the rather significant increase in gain.

CONSIDERATIONS

- Patient presented with pre-existing features of lipodystrophy likely secondary to previous use of protease inhibitors.
- She was at her lowest body weight at time of regimen change.
- It is not clear if she continued on appetite stimulants immediately after regimen change.
- Hepatitis C treatment was initiated after HIV regimen change to FTC/TDF and DTG.
- HIV weight-related stigma, generalized depression and anxiety were underappreciated.

CONCLUSIONS

The associations between INSTIs and weight gain require additional investigations. The impact on pre-existing abnormal fat distributions also warrants research. In addition, providers must be geared to address body image perceptions and weight management strategies when initiating this newer class of antiretroviral medications.

REFERENCES

¹Kerchberger, A.M., Eng, M., Sheth, A.N., Angert, C.D., Mehta, C.C., Summers, N.A., Ofotokun, I., Gustafson, D., Weiser, S., Kassaye, S., Konkole-Parker, D., Sharma, A., Adimora, A., Bolivar, H., & Lahiri, C.D. (2019). *Integrase Strand Transfer Inhibitors are associated with weight gain in women*. [Program Abstract]. Conference on Retroviruses and Opportunistic Infections. Seattle, Washington, March 4-7, 2019. Emory University School of Medicine, Atlanta, GA, USA.

²Norwood, J., Turner, M., Boffill, C., Rebeiro, P., Shepherd, B., Bebawy, S., ... Koethe, J. R. (2017). Brief Report: Weight Gain in Persons With HIV Switched From Efavirenz-Based to Integrase Strand Transfer Inhibitor-Based Regimens. *Journal of acquired immune deficiency syndromes* (1999), 76(5), 527–531. doi:10.1097/QAI.0000000000001525

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